

please by 11/5 on  
separate scale

# (12) UK Patent Application (19) GB (11) 2 269 088 (13) A

(43) Date of A Publication 02.02.1994

(21) Application No 9312543.3

(22) Date of Filing 17.06.1993

(30) Priority Data

(31) 9213037 (32) 19.06.1992 (33) GB

(71) Applicant(s)

John Hay  
24 Rutland Drive, HARROGATE, North Yorkshire,  
HG1 2NS, United Kingdom

Stephen McNally  
12 York Road, KINGSTON-UPON-THAMES, Surrey,  
KT2 6JS, United Kingdom

(72) Inventor(s)

John Hay  
Stephen McNally

(74) Agent and/or Address for Service

Urquhart-Dykes & Lord  
8th Floor, Tower House, Merion Way, LEEDS,  
LS2 8PA, United Kingdom

(51) INT CL<sup>5</sup>

G07G 1/00

(52) UK CL (Edition M)

A4B B11  
U1S S2132

(56) Documents Cited

None

(58) Field of Search

UK CL (Edition L) A4B  
INT CL<sup>5</sup> G07G 1/00

(54) Equipement for counting coins

(57) A till drawer includes a plurality of separable inserts for containing coins, the weights of separate ones of the said inserts being approximately the same. The difference in weight between separate ones of the said inserts will generally be selected to be less than about half of the weight of the coin having the lowest weight of various denominations of coins to be contained in the drawer.

The drawer allows counting of coins to be simplified by reducing the number of transfers of the coins necessary during the counting operation, since coins can be counted while in their respective inserts, whose weights will be known.

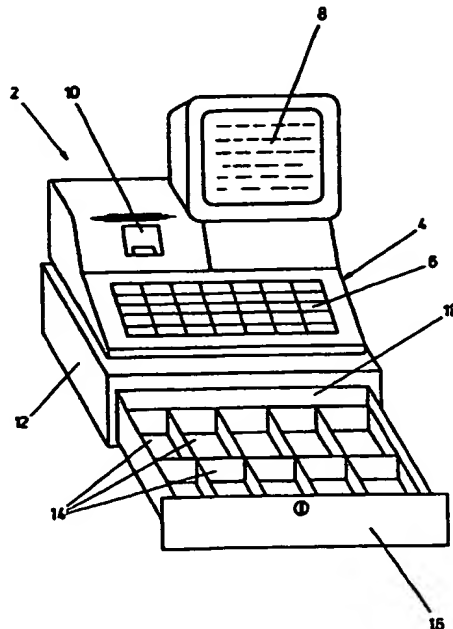


FIG. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 269 088 A

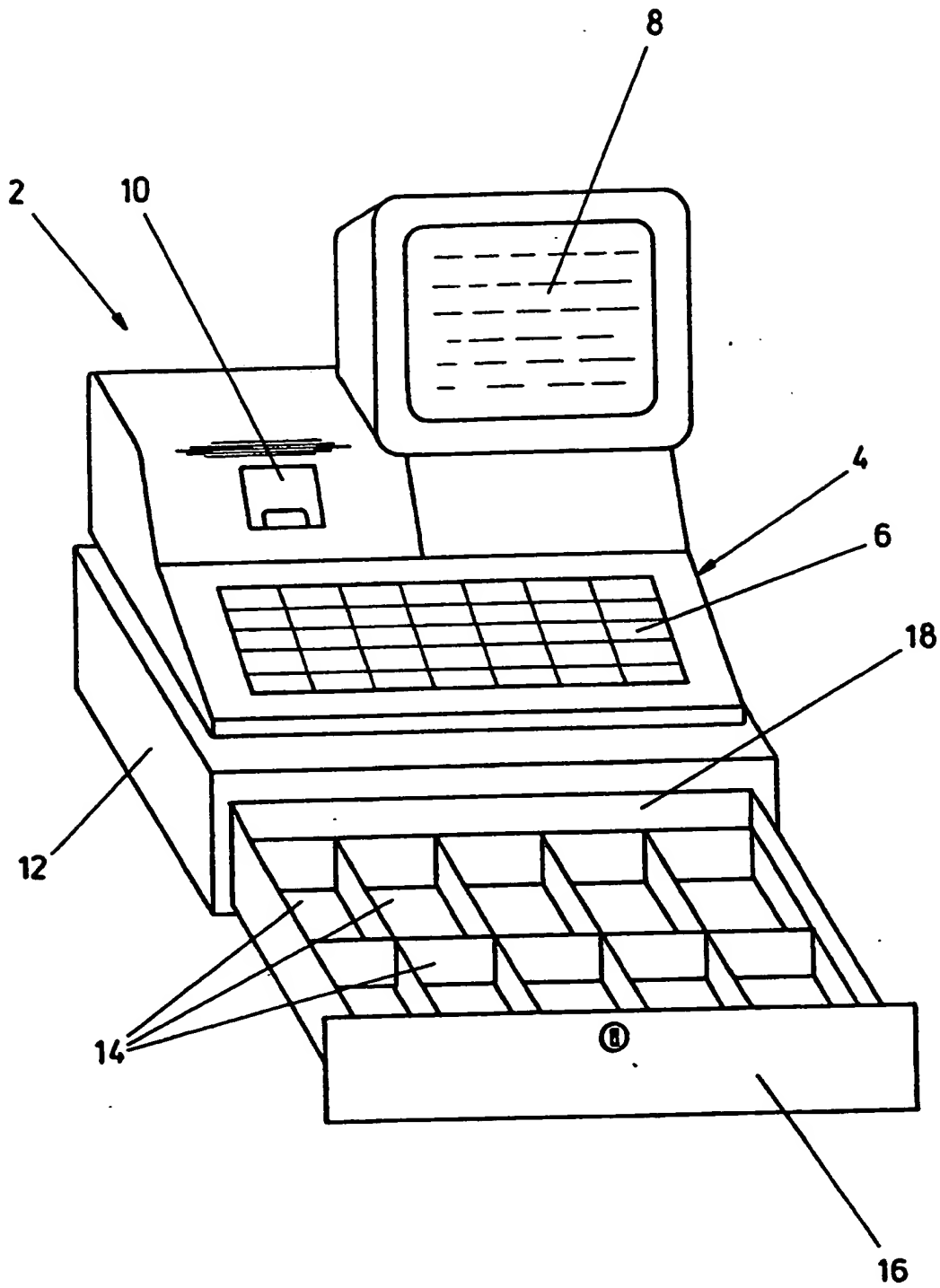


FIG. 1

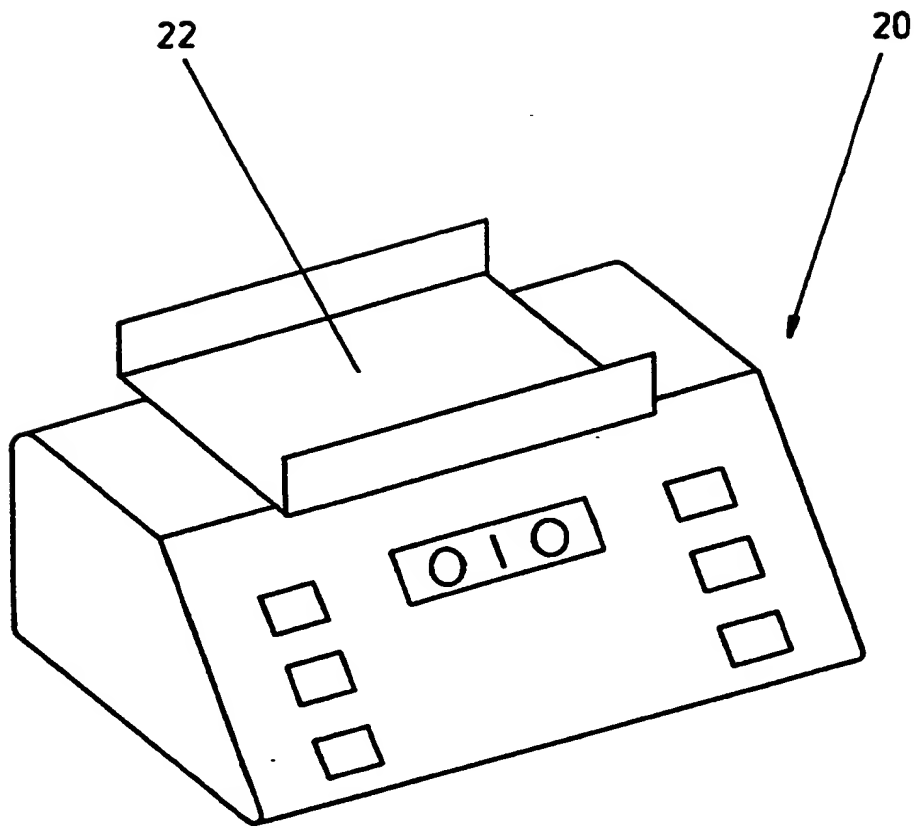


FIG. 2

## COUNTING COINS

This invention relates to counting coins. It relates to equipment for counting coins, and to components of such equipment.

Cash tills such as are commonly found in retail outlets and banks are generally formed with a plurality of compartments for containing coins of different denominations. This makes location of coins of different denominations easier. This has particular advantage when coins have to be counted.

Coins are commonly counted by determining the weight of a number of coins of a single denomination; the number of coins can then be determined if the weight of an individual coin is known. Currently, coins are counted by placing coins of a single denomination into a container whose weight has been determined, and by weighing the weight of the coins and the container. The weight of the coins is calculated by subtracting the weight of the container from the combined weight.

It can be inconvenient and time consuming to have to transfer coins from individual compartments in a till drawer into a container for a weighing operation, and then to replace the coins back in their respective containers or into further containers, for example for transfer to another location.

The present invention provides a technique by which the manipulation of coins can be simplified, by reducing the transfers of coins between containers during a counting operation involving weighing of the coins.

In one aspect, the invention provides a till drawer which includes a plurality of separable inserts for containing coins, the weights of separate ones of the said inserts being approximately the same.

The till drawer of the invention has the advantage that coins of different denominations contained in individual ones of the inserts in the drawer can be counted by weighing the inserts with the coins within them, without the need to weigh each of the inserts individually. This allows coins to be counted significantly more quickly than has been the case hitherto, and minimises the likelihood of coins being lost during transfer between compartments of a till drawer and a container in which they are to be weighed.

The till drawer will preferably include at least enough separable inserts for one to be provided for each denomination of coin to be collected in the drawer. For example, there might be at least about six inserts in a till drawer.

The difference in weight between separate ones of the said inserts will generally be selected to be less than about half of the weight of the coin having the lowest weight of various denominations of coins to be contained in the drawer. Generally, the said weight difference will be less than about 3.5 grams, preferably less than about 2.5 grams, more preferably less than about 1.75 grams, especially less than about 1.5 grams, for example less than about 1.0 grams. A smaller weight difference can increase the accuracy with which the coins are counted, especially the lighter of the coins.

In another aspect, the invention provides a method of making inserts for use in a till drawer, for containing separate denominations of coins in the drawer, which comprises the steps of:

- (a) identifying the coin to be contained in an insert in the drawer which has a smaller weight than any other of the coins to be contained in other inserts in the drawer;

- (b) determining half of the weight of the said coin;

(c) creating a plurality of inserts, the weights of separate ones of the said inserts being approximately the same.

Preferably, the inserts are formed from a plastics material. Examples of suitable materials include polyamides, polyesters, polyolefins, polycarbonates and so on. For some applications, it can be preferable to form the inserts from materials other than plastics, such as metals.

Preferably, the inserts are formed by a process which includes a moulding step. An injection moulding step can be preferred in many situations because of its simplicity and the speed with which it can be operated. A moulding operation can also be arranged to produce inserts with weights which are close to a predetermined value.

The weights of the individual inserts can be adjusted so that they are approximately the same by addition of material to the inserts or by removal of material from the inserts. For example, material might be added to the inserts by fastening weights to the inserts. Material might be removed from the inserts by a milling or trimming operation. When inserts are made by a moulding step, the material which is removed can be superfluous material which forms part of the moulded insert as a result of the moulding step, for example flash, or a protruding spike which is formed in the opening into the mould for the material from which the insert is moulded. Material might also be removed from the body of the insert, for example by a cutting, filing or milling operation, for example to form a recess in the insert.

The inserts in a single drawer can have different shapes and sizes selected to accommodate the anticipated number of coins of particular denominations in the drawer, provided that the weights of the inserts satisfy the condition set out above. For example, (a) the inserts might have different shapes when

viewed in plan such as might arise in the event that one insert has fewer or more sides than another insert, or (b) the inserts might have different areas when viewed in plan, or (c) the inserts might have different depths. When the inserts have different shapes, the condition that they have approximately the same weight can be satisfied, for example, by varying the wall thickness of the inserts.

In another aspect, the invention provides equipment for counting coins, which includes a scale and a till drawer of the type disclosed above, the scale having a weighing platform on which individual ones of the said inserts can be positioned for weighing, and being able to measure weights of individual inserts at least to within a weight corresponding to the difference between the weights of individual ones of the inserts.

Preferably, the scale includes means for storing data relating to the weights of individual coins of denominations to be weighed.

Preferably, the scale includes means for storing data relating to the weight of an empty insert, and means for calculating the weight of coins contained within an insert by subtracting the weight of an empty insert from the weight of an insert which contains the coins.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is an isometric view of a cash till, showing a till drawer with inserts for containing coins; and

Figure 2 is an isometric view of a scale for weighing coins contained in inserts from the drawer of the till shown in Figure 1.

Referring to the drawings, Figure 1 shows a cash till 2 which includes a data entry console 4 with a keyboard 6, a display 8 and a printer 10. The console is mounted on a till drawer unit 12. The till drawer unit includes a plurality of inserts 14 for containing coins, contained within the drawer 16. A separate insert is provided for each denomination of coin. The drawer can also have a region 18, which might contain further inserts if desired, for paper money and documents (such as vouchers, cheques and credit card counterfoils). The till drawer is opened under control of the console, in response to electrical signals from the console.

The inserts are formed from a plastics material by an injection moulding process. The difference between the weight of the heaviest and lightest of the inserts is less than about 1.5 grams, which is less than about half of the weight of a 5 pence piece, the lightest coin currently in circulation in the United Kingdom. The weight difference is kept within this limit by removing material from the inserts after they have been moulded, from the stalk of material which extends from the insert in the region of the port into the mould for the material from which the inserts are moulded.

Figure 2 shows a scale 20 for weighing coins. It includes a platform 22 for receiving the inserts 14 from the till drawer 16. The scale includes means for storing data relating to the weights of individual coins of denominations to be weighed. The scale has a control panel 24 by which the scale can be programmed for example to weigh and to store the weight of an empty insert, and by which information concerning the denomination of coin being weighed can be entered. The scale further includes means for storing data relating to the weight of an empty insert, and means for calculating the weight of coins contained within an insert by subtracting the weight of an empty insert from the weight of an insert which contains the coins.



CLAIMS:

1. A till drawer which includes a plurality of separable inserts for containing coins, the weights of separate ones of the said inserts being approximately the same.
2. A till drawer as claimed in claim 1, in which the said weight difference is not more than about 2.5 grams.
3. A till drawer as claimed in claim 1, in which the said weight difference is not more than about 1.5 grams.
4. A till drawer as claimed in any one of claims 1 to 3, in which the inserts are formed from a plastics material.
5. A till drawer as claimed in any one of claims 1 to 4, in which the inserts are formed by a process which includes a moulding step.
6. Equipment for counting coins, which includes a scale and a till drawer as claimed in any one of claims 1 to 5, the scale having a weighing platform on which individual ones of the said inserts can be positioned for weighing, and being able to measure weights of individual inserts at least to within a weight corresponding to any difference between the weights of individual ones of the inserts.
7. Equipment as claimed in claim 6, in which the scale includes means for storing data relating to the weights of individual coins of denominations to be weighed.
8. Equipment as claimed in claim 6 or claim 7, in which the scale includes means for storing data relating to the weight of an empty insert, and means for calculating the weight of coins contained within an insert by subtracting the weight of an empty insert from the weight of an insert which contains the coins.

9. A method of making inserts for use in a till drawer, for containing separate denominations of coins in the drawer, which comprises the steps of:

(a) identifying the coin to be contained in an insert in the drawer which has a smaller weight than any other of the coins to be contained in other inserts in the drawer;

(b) determining half of the weight of the said coin;

(c) creating a plurality of inserts, the weights of separate ones of the said inserts being approximately the same.

10. A method as claimed in claim 9, which includes a moulding step by which the inserts are created.

11. A method as claimed in claim 9 or claim 10, which includes a step of removing material from at least some of the inserts, to reduce their weight.

**Relevant Technical Fields**

- (i) UK Cl (Ed.L) A4B  
 (ii) Int Cl (Ed.5) G07G 1/00

Search Examiner  
 M J PENNELL

Date of completion of Search

**Databases (see below)**

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-  
 1-11

(ii)

**Categories of documents**

- X: Document indicating lack of novelty or of inventive step.  
 Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.  
 A: Document indicating technological background and/or state of the art.  
 P: Document published on or after the declared priority date but before the filing date of the present application.  
 E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.  
 &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
	NONE FOUND	